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Atty Dkt. No.: 10981377-4
USSN: 10/020,693**REMARKS**

In view of the following remarks, the Examiner is requested to allow claims 37-43, 46, 47, and 49-77, the only claims pending and under examination in this application.

Claim 74 has been amended to clarify the claim language. Accordingly, no new matter has been added.

As no new matter has been added by way of this/these amendments(s), entry thereof by the Examiner is respectfully requested.

Claim Rejections - 35 U.S.C. § 112, second paragraph

Claim 74 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. The Applicants respectfully disagree. However, to expedite prosecution and advance the case to issuance, Claim 74 has been amended thereby rendering this rejection moot. The Applicants, therefore, respectfully request that his rejection be withdrawn.

Claim Rejections – 35 U.S.C. § 102

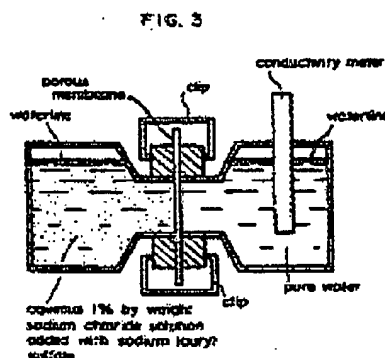
Claims 37-43, 46, 47, 49, 50, 52, 53, 56-58, 61-69, 71, 72 and 74 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Takauchi *et al.* (USPN 5,453,333).

Claim 37 is directed to a method of modulating the flow of a fluid along a flow path of a micro-fluidic device. The flow path to be modulated is *within* the microfluidic device and the method involves modulating the physical state of a micro-valve that is positioned within the flow path of the micro-fluidic device.

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The Applicants' specification clearly sets forth that the term "micro-fluidic" device refers to "any device in which micro-volumes of fluid are manipulated along a fluid flow path." See paragraph 24.

The Office asserts that Takauchi discloses a micro-fluidic device that comprises a porous membrane within a flow path of the micro-fluidic device. The porous membrane acts as micro-valve positioned in the flow path that functions to control the flow of a fluid through two compartments of the microdevice that are separated by the membrane. In support of this assertion the Office points to Figure 3 of Takauchi. See below:



The Office asserts that Figure 3 shows that the porous membrane, which includes a phase reversible material, is positioned within the fluid flow path of the device of Figure 3. However, the device of FIG. 3 is a battery and the Applicants contend that the battery of FIG. 3 is not a microfluidic device.

In order for the battery to function a sufficient amount of electrolytes must be able to rapidly pass from one electrode of the battery to the opposing electrode and thereby transfer a charge from one side of the porous membrane to the other. As is known in the art, batteries are bulky and their electrodes are relatively large. Accordingly, for the battery of Takauchi to function properly the porous membrane would have to be configured to allow a large quantity of solution to flow from one compartment to the other. Hence, the battery of Takauchi is simply not configured for manipulating micro-volumes of fluid along a fluid flow path. As such, one of skill

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in the art would simply not consider the battery disclosed in Takauchi to be a microfluidic device.

Therefore, as Takauchi does not teach a microfluidic device that includes a microvalve that comprises a phase reversible material stably associated with a high surface area component, wherein both the phase reversible material and the high surface area component are present in the flow path of the micro fluidic device, Takauchi does not teach every element of the rejected claims. Accordingly, the Applicants respectfully request that the 35 U.S.C. § 102(b) rejection of Claims 37-43, 46, 47, 49, 50, 52, 53, 56-58, 61-69, 71, 72 and 74 be withdrawn.

Claim Rejections – 35 U.S.C. § 103

Claims 54, 55, 59, 60, 73 and 77 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Takauchi *et al.* as applied to claims 37-43, 46, 47, 49, 50, 52, 53, 56-58, 61-69, 71, 72 and 74 above, and further in view of Hooper *et al.* (USPN 5,569,364).

As reviewed above, Takauchi is deficient in at least for failing to teach a microvalve that comprises a phase reversible material stably associated with a high surface area component wherein both the phase reversible material and the high surface area component are present in a flow path of a microfluidic device. As Hooper has been cited solely for its disclosure of poly(N-isopropylacrylamide) as the second polymer, Hooper fails to remedy the deficiencies of Takauchi.

Accordingly, a *prima facie* case of obviousness has not been established because neither Takauchi nor Hooper teach all the elements of the rejected claims. Therefore, the Applicants respectfully request that the 35 U.S.C. 103(a) rejection of Claims 54, 55, 59, 60, 73 and 77 be withdrawn.

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CONCLUSION

Applicants submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Mike Beck at (408) 553-3864.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-1078, order number 10981377-4.

Respectfully submitted,

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